

January 15, 1977

STATEMENT BY PROF. ROBERT E. JERVIS, DEPARTMENT OF  
CHEMICAL ENGINEERING AND APPLIED CHEMISTRY, AND  
INSTITUTE FOR ENVIRONMENTAL STUDIES.  
RE: YELLOWKNIFE ARSENIC POLLUTION PROBLEM

"The findings of our recent tests on hair samples supplied to us by the National Indian Brotherhood clearly demonstrate a very high degree of exposure to arsenic for Indian children living at Yellowknife and other workers in Yellowknife's gold mining and smelting operations.

"We found arsenic concentrations in hair samples from Yellowknife, ranging up to 278 parts per million (ppm), with a mean value of 25 parts per million, compared to a maximum of only one part per million and a mean of 0.4 part per million for a control group from Whitehorse.

"Thirty per cent of the samples from Yellowknife Indian children and smelter workers contained more than 10 parts per million of arsenic, and 50 per cent contained more than five parts per million, whereas none of the Whitehorse control samples had more than five parts per million.

"We have tested hair for arsenic for many years and performed such tests on samples from all over Canada. We can say from experience that a level as high as five parts per million is rarely found among persons that have not been exposed to identifiable sources of arsenic. Our findings indicate a significant local environmental contamination level in Yellowknife.

"We compared our findings with those cited in a recent study by the Federal Government, which reported less than 10 per cent of Yellowknife residents had arsenic levels above five parts per million in their hair. The discrepancy could be explained by the fact that the Federal study was based on a volunteer group representing only a fraction of the local residents. Our study was based on a more complete sampling of children and workers of the Yellowknife area. We tested the hair of 46 Yellowknife children and of 20 smelter workers. We also tested hair samples from 15 children and 12 steel workers from Whitehorse, serving as control groups.

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"Our tests were performed on samples obtained in Yellowknife and Whitehorse, using a procedure known as neutron activation. We employed the University of Toronto's "Slowpoke" nuclear reactor and its radiation instruments. This testing technique, which was developed at this university by several of my colleagues in the Department of Chemical Engineering and Applied Chemistry and myself, has unusual sensitivity in revealing arsenic pollution compared to other standard methods. Testing of check samples of known arsenic content also confirms the accuracy and reliability of our findings.

"As associates of the University's Institute for Environmental Studies, we, and other associates of the Institute, have done several studies of arsenic pollution in locations all over Canada, including Yellowknife on previous occasions, as well as Sudbury, Ontario.

"We co-operated in this study with Lloyd Tatayrn, of the National Indian Brotherhood and with Ed McCrae, of the United Steel Workers of America."



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AUTHOR

Yellowknife arsenic pollution

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JERVIS, Robert E.

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